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中国植物志黄芪属预报（三）

傅坤俊

PRASCURSORES FLORAE ASTRAGALORUM SINENSIUM (Ⅲ)

Fu Kun-tsun

三、髯毛黄芪亚属

Subgen. **Pogonophace** Bge. in Mem. Acad. Sci. St. Petersb. VII. 11(16): 2. 1868 et 15(1): 1. 1869, p. p.; Baker in Hook. f. Brit. Ind. 2: 118. 1876, p. p.; Pet.-Stib. in Acta Hort. Gothob. 12: 57. 1937 —— Subgen. *Trichostylus* Baker l. c. —— Sect. *Trichostylus* (Baker) Taub. in Engl. u. Prantl, Nat. Pflanzenfam. III. 3: 236. 1894.

亚属的模式种： *Astragalus complanatus* R. Br. ex Bge.

本亚属约有41种，我国产32种，7变种。

组Ⅰ. **裸果黄芪组**

Sect. Ⅰ. **Trichostylus** (Baker) Taub. in Engl. u. Prantl, Nat. Pflanzenfam. III. 3: 286. 1894, mut. char. —— Subgen. *Trichostylus* Baker in Hook. f. Fl. Brit. Ind. 2: 118. 1876.

Caules erecti, humiles, 3—10cm alti. Stipulae basi coati-

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tae. Flores solitarii vel racemis 2—4-floribus dispositi; bracteae lineares vel foliaceae; corollae violaceae; vexilla rotunda vel transverso-oblonga, unguibus brevissimis; ovaria stipitata interdum stylis superioribus barbatis. Legumina appressa saccta obovata oblongave obtusa unilocularia.

组的模式种： *Astragalus heydei* Baker

本组共有3种，我国全产。

1．**囊果黄芪**（新种）图1

Astragalus saccatocarpus K. T. Fu. sp. nov.

Species facie *A. heydei* Baker similis, sed caulibus altioribus, internodiis elongatis; foliolis majoribus et remotioribus. non complicatis; stylis glabris stigmatibus sparse barbulatis; Leguminibus ferrugineo-mollissimis differt.

Perennis c. 10cm alta. Rhizoma longe cylindricum sublignosum. Caules ascendentes 5—6cm longi glabrescentes. Folia imparipinnata 10—30mm longa, petiolis c. 1cm longis; stipulae ovato-lanceolatae glabrae obtusae c. 5mm longae; foliola opposita 6—9-juga, oblonga obovato-oblonga 8—15mm longa 4—6mm lata, apice obtusa rotundave mucronata. basi rotunda, remotiuscula, supra glabra subtus pilosa. brevissime petiolulata. Inflorescentia terminalis 2—5-flora. Pedunculi 4—5cm longi pilosi foliis parum breviores vel parum longiores; bracteae lanceolatae c. 4mm longae glabrae. Pedicelli 3—4mm longi dense villosuli ebracteolati; calycis tubus campanulatus 3—3.5 mm longus cum dentibus ferrugineo-pilosus, dentibus triangulis 2.5—3mm longis; corolla ignorata. Legumina obovato-elliptica 2—2.8cm longa (cum stipitibus), apice acuta, basi 7—9mm longe stipitata, dense ferrugineo-mollissima, valde turgida, uniloculares 4—5-sperma, stylos glabros stigmata sparse barbulata persistentia. Semina reniformia brunnea 2—2.5mm longa.

Yunnan: Deqen Xian, Huanfu-ping in declivitate alpina, 3700m, Wang Chi-wu 68921(**Typus**, in Herb. Instit. Bot. Acad. Sin.), VIII, 1935; ib. Baima Shan, Sanyung-ba, in lapide

montis, Yu Te-tsun 9280, 29, VII, 1937.

本种与毛柱黄芪（*A. heydei* Baker）近似，但茎较高，节间延伸，小叶较大和较疏，不覆叠；花柱无毛，柱头具疏毛；荚果具锈色柔毛而不同。

产云南西北部德钦；生于山坡或山地岩石上，海拔3700—4150米。

2．**绒毛黄芪**

Astragalus handersonii Baker in Hook. f. Fl. Brit. Ind. 2: 120. 1876.

产西藏西部、南部至东部，青海南部；生于砾石山坡或山坡半固定沙中，海拔4700—5050米。克什米尔地区也有分布。**模式标本**采自西藏西部。

3．**毛柱黄芪**

Astragalus heydei Baker in Hook. f. Fl. Brit. Ind. 2: 118. 1876.

产西藏西部和南部；生于高山地带砂砾地上，海拔4572—5100米。西巴基斯坦也有分布。**模式标本**采自西藏西部喜马拉雅山区。

组II．**背扁黄芪组**

Sect. II. **Phyllolobium** (Fisch.) Bge. in Mem. Acad. Sci. St.-Petersb. 11 (16): 3. 1868 et 15 (1): 1. 1869, quoad typ. sp. subgen. —— Ser. *Phyllolobium* (Bge.) Taub. in Engl. u. Prantl, Nat. Pflanzenfam. III. 3: 286. 1894, excl. *A. pycnorhizus* Wall. ex Benth. ——Subgen. *Phaca* Sect. *oliganthae* Simps. in Not. Bot. Gard. Edinb. 8: 251. 1915.

Caules prostrati. Stipulae liberae, parvae. Flores pauci, racemis sparsis axillaribus dispositi; bracteae subulatae; bracteolae minimae; corollae lacteae vel violaceae; vexilla subrotunda, unguibus brevissimis; ovaria stipitata. Legumina appressa anguste oblongo-elliptica utrinque acuminata, paullo turgida chartacea, nigro-brunnea unilocularia.

本组仅1种和1变种。

4．**背扁黄芪** 沙苑蒺藜（本草纲目）、潼蒺藜（中药志）、蔓黄芪（中国植物图鉴）

Astragalus complanatus R. Br. ex Bge. in Mem. Acad. Sci. St.-Petersb. VII. 11 (16): 4. 1868 et 15 (1): 1. 1869. —— *A.*

pratensis Ulbr. in Repert. Nov. Sp. Beih. 12: 417. 1922.

产河南、陕西、甘肃、宁夏及华北、东北；生于路边、沟岸、草坡及干草场，海拔100—1700米。模式标本采自河北。

真毛黄芪（变种）

var. **eutrichus** Hand.-Mazz. in Osterr. Bot. Zeitschr. 82: 248. 1933.

产云南东北部及四川西部雅江；生于河岸，海拔2400米。模式标本采自云南。

组III. **膨果黄芪组**

Sect. III. **Bibracteolatae** (Simps.)K. T. Fu, transl. nov.——Subgen. *Phaca* Sect. *Bibracteolatae* Simps. in Not. Bot. Gard. Edinb. 8: 252. 1915, mut. char.——Sect. *Phyllolobium* (Fisch.) Bge. in Mem. Acad. Sci. St.-Petersb. VII. 11(16): 1. 1868 et 15(1): 3. 1869, quoad *A. pycnorhizus* Wall. ex Benth.

Caules decumbentes prostrative. Stipulae liberae. Flores flavi purpurascentesve, raro atro-purpurei, in racemos axillares capitatos umbellatosve dispositi; bracteae persistentes, bracteolatae aut non; vexilla rotunda ad transverso-elliptica; ungues brevissimi; ovaria longe stipitata, stylis glabris raro pilosis. Legumina turgida, cylindrica vel compressa, false bilocularia.

组的模式种：*Astragalus camptodontus* Franch.

本组共有22种和5变种。

系1. **贫苞黄芪系** *Ser.* **Ebracteolatae** (Simps.)K.T.Fu, ser. comb. nov.——Subgen. *Phaca* Bge. Sect. *Ebracteolatae* Simps. in Not. Bot. Gard. Edinb. 8: 253. 1915.

系的模式种：*Astragalus craibianus* Simps.

本系有4种和1变种。

5. **川西黄芪**

Astragalus craibianus Simps. in Not. Bot. Gard. Edinb. 8: 240. 1915; Pet.-Stib. in Acta Hort. Gothob. 12: 38. 1837.

产四川西部；生于山坡荒地或高山草原，海拔3900—4800米。

6. **蒺藜叶黄芪**

Astragalus tribulifolius Benth. ex Bge. in Mem. Acad. Sci.

St.-Petersb. VII. 11 (16): 4. 1868 et 15 (1): 2. 1869.

产西藏西部和南部，生于山坡沙地草丛中或沟底滩地及阶地，海拔3860—4800米。锡金、巴基斯坦及克什米尔地区也有分布。模式标本采自西藏西部。

据西巴基斯坦植物志载：本种在我国四川、甘肃二省有分布，但到目前为止，我们尚未看到像样的标本。

少花黄芪（变种）

var. **pauciflorus** Marq. et Shaw in Journ. Linn. Soc. Bot. 48: 171. 1929.

产西藏东南部；生于干燥山坡灌丛和石坡或多砂砾土壤中，海拔2700—3000米。模式标本采自林芝。

7．**奇异黄芪**（新种）图2

Astragalus prodigiosus K. T. Fu, sp. nov.

Species *A. sciadophoro* Franch. similis, sed foliolis 7—9-jugis, valde inaequalibus summa maxima; calycibus 4.5—5mm longis; vexillis laminis reniformibus vel semiorbiculatis distinguitur.

Herba perennis, toto grisea. Caulis 5—10cm longus, pilis albis adpressis breviter obsitus. Folia imparipinnata, 2.5—3.5cm longa, breviter petiolata; stipulae liberae triangulares triangulo-lanceolataeve, 2—3mm longae, ciliatae; foliola 7—9-juga, petiolulata opposita linearia lineari-lanceolatave, 5—11mm longa, valde inaequelia a infimo ad partem superiorem versum sensim breviora, sed summa maxima, apice acuta raro acuminata, basin subrotunda, supra glabra vel paucipilifera subtus pilis albis adpresse obtecta. Racemus 3—5-florus 1—1.5cm longus; pedunculus axillaris ad 3cm longus, pilis albis adpressis breviter tectus; bracteae ovato-lanceolatae haud 2mm longae. Pedicelli 1—1.5mm longi, adpresse piliferi, bracteolati; calyx campanulatus adpresse albo-pilifer, tubo 2.5—3mm longus, dentibus triangulari-lanceolatis, c. 2.5mm longis; corollae saltem partibus superioribus violaceae, 7—8mm longae; vexillum 8mm longum, lamina reniformi vel semiorbiculata, emarginata,

basi ungue brevi abrupte contractum; alae vexillo fere aequilongae, lamina suboblonga, apice rotundata, unguibus c. 1.6mm longis; carinae c. 6.5mm longae, unguibus laminis brevioribus; ovarium breviter stipitatum albo-puberulum, stylo glabro, stigmate barbatum. Legumen ignoratum.

Tibet: Suburbium occidentale in Lasa Shi, in margine fruticeti flabelli alluvii, 3800m, Tib. Exp. 0011 (**Typus**, in Herb. Instit. Biol. Planit. Bor.-occ. Acad. Sin.), 21, V, 1973.

本种与辽西黄芪（*A. sciadophorus* Franch.）近似，但小叶7—9对，极不等大，顶端1片最大；花萼长4.5—5毫米；旗瓣的瓣片肾形或半圆形等。

产**西藏**东部拉萨市西郊；生于洪积扇灌丛边缘，海拔3800米。

8．**辽西黄芪**

Astragalus sciadophorus Franch. in Nouv. Arch. Mus. Hist. Nat. Paris II. 5: 236. 1883.

产**辽宁**西部；生于河边沙地上。

系2．**小苞黄芪系** Ser. 2. **Bibracteolatae** K.T.Fu, ser.nov.

Bracteae persistentes, lineares, subulatae usque ovatae; calyces basi bibracteolatae.

本系共有18种和4变种。

9．**弯齿黄芪**

Astragalus camptodontus Franch. Pl. Delav. 160. t. 39. 1889, p. max. p.

产**云南**西北部及**四川**西南部；生于石灰岩石上或山坡牧场，海拔2500米。**模式标本**采自云南洱源。

10．**丽江黄芪**

Astragalus lichangensis Simps. in Not. Bot. Gard. Edinb. 8: 125. 1913.

产**云南**西北部；生于草地上，海拔3200米。**模式标本**采自丽江。

11．**黄绿黄芪**　（新种）图3

Astragalus flavovirens K. T. Fu, sp. nov.

Species *A. camptodonto* Franch. proxima, sed caulibus robustioribus; foliis flavovirentibus ad 11cm longis; foliolis oblongis

ad 16mm longis; bracteis ad 5mm longis; calycis dentibus linearibus differt.

Herba perennis. Caules procumbentes robustiores 60cm longi, breviter sparseque piliferi, interdum ramosi. Folia imparipinnata flavovirentia sessilia 5—11cm longa; stipulae liberae triangulato-ovatae 6—8mm longae sparse ciliares; foliola breviter petiolulata. superiora opposita inferiora subalterna, oblonga 9—16mm longa 4—7mm lata, utroque rotunda subtus pilis adpressis sparse obsita, Inflorescentiae racemosae 10-florae vel multiores, cum pedunculis ad 11cm longae, sparse piliferae; bracteae subspathulatae suborbiculataeve 5—6mm longae 1.5—2.5mm latae, subtus sparse piliferae; pedicelli brevissimi; bracteolae lineares 4—5mm longae subtus pilis adpressis sparse tectae; calycis tubus campanulatus 4mm vix longus pilis adpressis sparse obsitus, dentibus linearibus 5—6mm longis; corollae flavovirentes, aliis apice violeis; vexilli limbus orbiculatus c. 13mm longus apice emarginatus ejus unguis 3mm longus; alarum limbi oblongi c. 9mm longi, ejus ungues 4mm longi; carinae alis paullo longiores, c. 13mm longae (ungues 6mm longi); ovarium stipitatum glabrum, stigmate barbatum. Legumen ignoratum.

Yunnan: Zhongdian Xian, prope Bai-di, ad locis umbrosis in silvis, Querci, 2500—2700m, Zhongdian Exp. 1006 (**Typus**, in Herb. Instit. Bot. Acad. Sin.), 18, VIII, 1962.

本种与弯齿黄芪（*A. camptodontus* Franch.）接近，但茎较粗壮；叶黄绿色，长达11厘米，小叶长圆形，长达16毫米；小苞片长达5毫米；萼齿线形等而不同。

产云南西北部；生于山沟栎林下荫处，海拔2500—2700米。模式标本采自中甸。

12. **细叶黄芪**（新种）图4

Astragalus angustifoliolatus K. T. Fu, sp. nov.——*A. chienhoantchy* S. S. Cheng in scheda.

Species *A. camptodonto* Franch. proxima, a quo foliolis 7—13-jugis, angustioribus linearibus, apice obtusis; inflorescentiis

3—9-floris differt.

Herba perennis, radice robustiore. Caules procumbentes, 30—50cm longi, pilis adpressis breviter obsiti. Folia imparipinnata, breviter petiolata 2—5cm longa; stipulae liberae triangulo-subulatae 5—6mm longae; foliola 7—13-juga, breviter petiolulata lineares angusto-oblongave 5—12mm longa 1—2.5mm lata, apice obtusa mucronata basi cuneata, supra glabra subtus pilis adpressis obtecta. Inflorescentiae breviter racemosae vel racemoso umbellatae, 3—9-florae; pedunculi 3—5cm longi pilis atro-brunneis breviter tecti, foliis longiores; bracteae lineares 5—6mm longae, pilis atro-brunneis sparsis breviter obtectae. Pedicelli 1.5—2mm longi pilis atro-brunneis breviter obsiti; bracteolae subulatae c. 2mm longae breviter piliferae; calycis tubus campanulatus c. 3mm longus, pilis adpressis atro-brunneis breviter tectus, dentibus aristiformibus 5—6mm longis pilis atro-brunneis breviter obsitis; corolla luteola, apice carinae violea; vexillum orbiculatum late obovatumve, c. 15mm longum 10—11mm latum, apice emarginatum, ungue c. 4mm longum; alae c. 13mm longae limbis suboblongis, unguibus c. 3.5mm longis; carinae aliis latiores et paullo longiores, unguibus c. 4mm longis; ovarium stipitatum glabrum, stigmate barbatum. Legumen ignoratum.

Yunnan: Lijiang Xian, prope Hortus botanicus, in pascuis saxosorum, 2750m, Zhongdian Exp. 613 (**Typus**, in Herb. Instit. Bot. Acad. Sin.), 8, VIII, 1962; ib. Xuesong Cun, in declivo herbose, 3000m, Yu Te-tsun 15454, 19, VIII, 1937.

本种与弯齿黄芪（*A. camptodontus* Franch.）接近，但小叶7—13对，线形，先端钝；花序着花3—9朵等而不同。

产**云南**西北部；生于碎石质牧地或草坡上，海拔2750—3000米。**模式标本**采自丽江。

13. **黄白黄芪**（新种）图5

Astragalus albido-flavus K. T. Fu, sp. nov.

Species *A. dolichochaetae* Diels similis, sed foliis brevioribus 4—8cm longis; foliolis 3—7-jugis, subtus pilis semipatentis obsitis; calycis dentibus c. 6mm longis; corollis albido-

flavis; vexillis late obovatis recedit.

Herba perennis. Caules procumbentes 30—40cm longi. pilis patentibus conspersi. Folia imparipinnata 4—8cm longa; stipulae anguste triangulatae acuminatae 3—4mm longae glabrae; foliola alterna 3—7-juga, breviter petiolulata, subelliptica oblongave, 9—16mm longa 3—6mm lata. Inflorescentia axillaris racemosa; pedunculi 4.5—7cm longi, pilis nigris patenter vestiti; bracteolae minutae, c. 0.5mm longae, pilosae; calycis tubus campanulatus c. 3mm longus pilis nigris obtectus, interdum pilis albis immixtus. dentibus longe aristiformibus c. 6mm longis, pilis nigris tectis; corolla albido-flava (e correctore); vexillum late obovatum c. 14mm longum, apice emarginatum basi abrupte attenuatum; alae c. 11.5mm longae c. 3mm latae, unguibus c. 3mm longis; carinae c. 12mm longae c. 4mm latae, unguibus c. 4mm longis; ovarium stipitatum, pilis nigris obtectum, stigmate barbato. Legumen ignoratum.

Tibet: Jomda Xian, Jomda ad Jueyong, Tsei You-wen 5320 (**Typus**, in Herb. Instit. Bot. Acad. Sin.), 18, VIII, 1951.

本种与芒齿黄芪（*A. dolichochaete* Diels）近似，但叶较短，长4—8厘米；小叶3—7对，下面被半开展毛；萼齿长约6毫米；花冠黄白色；旗瓣宽倒卵形而不同。

产**西藏**东部；生于路旁。**模式标本**采自江达。

14. **芒齿黄芪**

Astragalus dolichochaete Diels in Not. Bot. Gard. Edinb. 5: 245. 1912.

产**云南**西北部；生于高山林下，海拔3600米。**模式标本**采自丽江。

15. **甘青黄芪**

Astragalus tanguticus Bat. in Acta Hort. Petrop. 11: 485. 1891.

产**西藏**东部，**四川**西部，**青海**南部至东部和**甘肃**南部；生于山谷、高山坡和干草地，海拔2500—3500米。**模式标本**采自青海与甘肃交界处。

16. **乡城黄芪**

Astragalus sanbilingensis Tsai et Yu in Bull. Fan Mem. Inst. Biol. Peiping, bot. ser. 9: 265. f. 9. 1940.

产**四川**西南部；生于松林下或开阔场所，海拔3000—4000米。**模式标本**采自乡城。

17. **类芒齿黄芪**

Astragalus camptodontoides Simps. in Not. Bot.Gard. Edinb. 8：240. 252. 1915.

产**云南**西北部及**西藏**南部；生于山坡岩石上，海拔3660米。**模式标本**采自云南。

18. **拉萨黄芪**

Astragalus lasaensis Ni et Li in Acta Phytotax. Sin. 17(2)：107. f. 6. 1979.

产**西藏**中部至南部；生于山坡草地，海拔4500—4600米。**模式标本**采自拉萨。

19. **米林黄芪**

Astragalus milingensis Ni et Li in Acta Phytotax. Sin. 17(2)：107. f. 7. 1979.

产**西藏**东部；生于山坡路旁，海拔 2900—3200 米。**模式标本**采自米林。

20. **小苞黄芪**

Astragalus prattii Simps. in Not. Bot. Gard. Edinb. 8 ：244. 253. 1915——*A. minutebracteolatus* Simps. l. c. 243,252,syn. nov.

产**四川**西北部，**甘肃**南部；生于松林下或草地上，海拔 2700—4200 米。**模式标本**采自四川康定。

一花黄芪（变种）

var. **uniflorus** Pet.-Stib. in Acta Hort. Gothob. 12：59. 1937.

产**云南**西北部。**模式标本**采自中甸。

多花黄芪（新变种）

var. **multiflorus** K. T. Fu, var. nov.

A typo varietatis recedit caulibus longioribus; floribus multioribus (6—10); foliolis ellipticis; calycis dentibus tubis longioribus.

Sichuan: Jinchuan Xian, Anning, in declivo herboso, 3800m, Li Xin 77693(**Typus**, in Herb. Instit. Bot. Bor.-occ.), 13, VI, 1958; Kangding Xian, Xindu-qiao, 3800m, Guan Ke-jian et al. 631, 17, VII. 1963.

本变种与原变种的区别在于：茎较长；花较多（6—10朵）；小叶椭圆形；萼齿较筒部稍长。

产四川西北部，生于草坡上，海拔3800—3850米。模式标本采自康定。

茂汶黄芪（新变种）

var. **pastorioides** K. T. Fu, var. nov.

A typo varietatis recedit habitu majore; caulibus robustioribus; foliolis majoribus 3—5-jugis, plerumque alternis; floribus multioribus 5—7-floris.

Sichuan: Maowen Qiangzu Zizhixian, Qugu-xiang, in silvis, He Zhu et Zhou Zi-lin 13839 (**Typus**, in Herb. Univ. Sichuan.), 24, VIII, 1952.

本变种与原变种的区别在于：体形较大；茎较粗；小叶较大，3—5对，常互生状；花序着生的花较多（5—7朵）等而不同。

产四川北部茂汶羌族自治县；生于林内。

12. **密根黄芪**

Astragalus pycnorhizus Wall. ex Benth. in Rohle, Ill. Bot. Himal. Mts. 199. 1835.

产西藏南部，云南西北部；生于山脊林缘草地或高山灌丛下，海拔2000—4500米。尼泊尔、锡金也有分布。模式标本采自我国西藏与尼泊尔接壤处。

22. **长小苞黄芪**

Astragalus balfourianus Simps. in Not. Bot. Gard. Edinb. 8: 123. 1913——*A. schneideri* Ulbr. in Notizbl. Bot. Gard. Berlin 8: 85. 1921.

产云南西北部，四川西南部；生于开阔多石牧场、林下、林缘或草坡上，海拔2650—4000米。模式标本采自云南丽江。

23. **膨果黄芪**（新种）图6

Astragalus turgidocarpus K. T. Fu, sp. nov.

Species *A. pycnorhizo* Wall. ex Benth. similis, sed foliolis 6—10-jugis; pedicellis 4mm longis; calycis tubis 6.5mm longis vexillis; ad 19mm longis, leguminibus satis turgidis ad 3.5cm longis facile distinguitur.

Rhizomata crassa. Caules decumbentes prostrative, 20—40cm longi multiramosi, pilis minutis adpressis conspersi. Folia impari-

pinnata, ad 5.5cm longa; stipulae liberae triangulari-lanceolatae, 3—5mm longae ciliatae; foliola petiolulata obovato-oblonga oblongave, 5—7mm longa 3—5mm lata, apice obtusa emarginatave, basi rotundata, supra glabra subtus pilis adpressis sparse obsita. Racemi axillares, 2—4-flori foliis longiores, ad 7cm longe pedunculati; bracteae subulatae 3—4mm longae. Pedicelli 3—4mm longi pilis adpressis breviter vestiti; bracteolae subulatae ab 4mm longae; calycis tubus campanulatus 6.5mm longus dentibus setaceis 5—6mm longis cum tubis pilis albidis adpressis sparse obtectus; corollae purpureae; vexillum fere orbiculatum, 15—19mm longum 10mm latum, apice emarginatum basi in unguem brevem abrupte contractum; alae c. 12mm longae, 5mm longe unguiculatae; carina 14mm longa, ungue 6mm longo; ovarium c. 4mm longe stipitatum, pilis minutis adpressis vestitum, stigmate barbato. Legumen oblongum 3—3.5cm longum (cum 5mm longe stipitato) satis turgidum reticulatum pilis albis brevioribus sparse obsitum.

Gansu: Min Xian, Kang-duo, in locis herbidis ripariis, 1950m, Wang Zuo-bin 14080 (**Typus**, in Herb. Instit. Bot. Bor.-occ.), 6, VI, 1951; Wudu Xian, Liang-shui, ad ripas, 1050m, He Ye-qi 512, 12, IX, 1958; ib. in declivibus siccis, Pung Ze-xiang 001, 13, VI, 1960; Diebu Xian, in declivibus apricis, 2150m, Wang Qing-lei 15720, 17, IX, 1973.

本种与密根黄芪（*A. pycnorhizus* Wall. ex Benth.）相似，但小叶6—10对；花梗长4毫米；萼筒长6.5毫米；旗瓣长达19毫米；荚果极膨胀，长达3.5厘米而易于区别。

产**甘肃**南部武都、舟曲、迭部和岷县；生于河岸、沟边、向阳山坡或河滩草地，海拔1050—2150米。**模式标本**采自岷县。

24. 牧场黄芪

Astragalus pastorius Tsai et Yu in Bull. Fan Mem. Inst. Biol. Peiping, bot. ser. 9: 264. 1940.

产**云南**西北部，**四川**西南部；生于江岸路旁开阔牧场上，海拔3000米。**模式标本**采自中甸。

线苞黄芪（新变种）

var. **linearibracteatus** K. T. Fu, var. nov.

A typo varietatis recedit bracteis linearibus lanceolato-linearibusve, submembranaceis, subtus piliferis ciliatisque.

Sichuan: Muli Zangzu Zizhixian, Waerzai, Yunnan-pu, ad marginem silvae, 3200m, Yu Te-tsun 14513, 12, X, 1937; ib. Dinggongpu ad Puchang, in declivibus lapidosis, 3250m, Yu Te-tsun 14768, 3, XI, 1937; ib. Muya Xiang, Hu Wen-guang et He Zhu 11020 (**Typus**, in Herb. Instit. Bot. Bor.-occ.), 23, VIII, 1951.

本变种与原变种的区别在于：苞片线形或披针状线形，近膜质，下面被毛并具缘毛等。

产四川西南部木里、乡城和理塘，西藏东部江达；生于草坡、林缘及阴湿草地，海拔2800—4200米。模式标本采自木里。

25. **德钦黄芪**（新种）图7

Astragalus tenchingensis S. S. Cheng, in mss., sp. nov.

Proximus *A. pastorio* Tsai et Yu, a quo differt bracteis anguste ovato-lanceolatis; stylis prope stigmata pilis nigris brevibus sparse obsitis.

Rhizoma crassum multicaule. Caules decumbentes prostrative crassiusculi, 25—40cm longi glabri. Folia imparipinnata, 5—6cm longa; stipulae triangulo-ovatae, c. 7mm longae et 5mm latae; foliola 3—4-juga breviter petiolulata obovato-lanceolata, ad 28mm longa et 8mm lata, apice obtusa mucronata basi cuneata, supra glabra subtus pilis adpressis conspersa. Racemi breviores subumbellati 4—6-flori; pedunculi 4.5—7cm longi glabri; bracteae longe ovato-lanceolatae, 4—5mm longae pedicellis longiores; bracteolae subulatae c. 1.5mm longae; calycis tubus campanulatus c. 3mm longus pilis adpressis nigris vestitus, dentibus triangulari-subulatis 2—2.5mm longis nigro-pilosis; corolla ignorata; styli prope stigmata pilis brevibus nigris sparse obsiti; stigmata barbata. Legumen oblongo-ovatum, c. 2cm longum turgidum pilis brevibus adpressis sparse obsitum, false biloculare. Semina 18, late reniformia c. 2mm longa nigra.

Yunnan: Deqin Xian, Baima Shan, in valle, 3000m, Wang Chi-wu 69776 (**Typus**, in Herb. Instit. Bot.-occ.), IX, 1935; ib. ad ripas, 2200m, Wang Chi-wu 70014, IX, 1935.

本种与牧场黄芪*A. pastorius* Tsai et Yu) 接近，不同处在于，苞片卵状披针形；花柱上部接近柱头处被黑色疏短毛。

产**云南**西北部德钦；生于山谷河边，海拔2200—3000米。

26. **单花黄芪**（新种）图8

Astragalus monanthus K. T. Fu, sp. nov.

Species affinis *A. pycnorhizo* Wall. ex Benth. sed pedunculis nonnisi unifloris; flore atro-purpureo; carinis vexillo aequilongis; bracteis deltoideis; bracteolis minimis deltoideis; stigmate et parte superiore styli barbato differt.

Herba perennis, toto viridescens. Caules numerosi caespitosi graciles, 6—15cm longi, pilis adpressis sparsis breviter obtecti. Folia imparipinnata 2—2.5cm longa, breviter petiolata; stipulae deltoideae, haud 2mm longae membranaceae glabrae; foliola 5—6-juga opposita vel alternantes, breviter petiolulata oblonga obovato-oblongave, 3—6mm longa, 2—3.5mm lata apice truncato-emrginata, basi rotunda supra glabra subtus pilis sparsis adpressis breviter obsita. Pedunculi axillares, ad 3.5cm longi, pilis adpressis nigris albisque mixti, uniflori; bracteae ut in stipulis, margine glandulosa appendiculato. Pedicellus 1.5—2mm longus, dense nigro-pilifer; bracteolae deltoideae membranaceae, minimae; calyx campanulatus, pilis adpressis atro-brunneis conspersus tubo c. 4mm longo, dentibus triangulari-lanceolatis, 3—3.5mm longis, inaequilongis, intus pilis atro-brunneis obtectis; corolla atro-purpurea, 14—15mm longa; vexillum 14mm longum, lamina subrotunda emarginato, unguie c. 4mm longo; alae oblongae vexillo minus breviores, apice rotundae, unguibus c. 4mm longis; carinae vexillo subaequilongae, subobovatae, unguibus 5mm longis; ovarium breviter stipitatum, sparse pubescens, stigmate et parte superiore styli barbato. Legumen ignoratum.

Tibet: Nyanang Xian, prope Quxiang, prope viam in silvis,

3300m, Medic. Sin. Exp. 1498 (**Typus**, in Herb. Instit. Biol. Planit. Bor.-occ. Acad. Sin.), 26, VIII, 1972.

本种与密根黄芪（*A. pycnorhizus* Wall. ex Benth.）近缘，但总花梗上仅着1花，花黑紫色；苞片三角状，小苞片很小，三角形；龙骨瓣与旗瓣等长；花柱上部内面和柱头上具髯毛。

产西藏南部聂拉木、曲乡；生于林区公路边，海拔3300米。

组IV. **侧扁黄芪组**

Sect. IV. **Sesbanella** Bge. in Mem. Acad. Sci. St.-Petersb. VII 11 (16) : 4. 1868 et 15 (1) : 2. 1869, p. parte, mut. char.——Sect. **Robusti** Pet.-Stib. in Acta Hort. Gothob. 12 : 66. 1937.

Caules erecti decumbentesve, robusti gracilesve, caespitosi vel solitarii simplices. Stipulae liberae vel basi connatae. Flores flavi vel purpurascentes, in racemos laxos longe dispositi; bracteae subulatae, bracteolatae vel ebracteolatae; calyces campanulati tubiformesve; vexilla obovata; alae carinis breviores; ovaria longe stipitata, stigmatibus penicillato-barbatis, barbis in stylos raro decurrentis, rarissime glabrescentis. Legumina compressa planiuscula tumidulave, stipitibus calycum multo superantibus, false vel fere complete bilocularia.

组的模式种：*Astragalus falconeri* Bge.

本组有6种和1变种，我国均产。

系1. **侧扁黄芪系** Ser. 1. **Sesbanella** K. T. Fu, ser. stat. ——Sect. *Sesbanella* Bge. in Mem. Acad. Sci. St.-Petersb. VII. 11 (16) : 4. 1868 et 15 (1) : 2. 1869, excl. sp. bicusp. med. fix. vestit.

本组有3种及1变种。

27. **侧扁黄芪**

Astragalus falconeri Bge. in Mem. Acad. Sci. St.-Petersb. VII. 11 (16) : 4. 1868 et 15 (1) : 2. 1869.

产西藏西南部。西巴基斯坦也有分布。**模式标本**采自喜马拉雅山区。

伏毛黄芪（新变种）

var. **paucistrigosus** K. T. Fu, var. nov.

A typo varietatis recedit caulibus foliisque pilis subadpressis vestitis; stipulis semicordatis non rotundatis, solum marginibus

ciliatis; foliolis dorsis costas secus sparse adpresseque piliferis; calycibus 4mm longis, dentibus 1.5—2mm longis.

Tibet: Pulan Xian, in declivo glareae, 3750m, QH-Tib. Exp. 8472(**Typus**, in Herb. Instit. Biol.Planit. Bor.-occ. Acad. Sin.), 16, VII, 1976.

本变种与原变种的区别在于：茎、叶被伏毛；托叶半心形，非圆形，仅有缘毛；小叶仅背面沿中脉两侧具疏伏毛；萼长4毫米，萼齿长1.5—2毫米。

产西藏西南部普兰；生于沙砾山坡上，海拔3750米。

28. **札达黄芪**

Astragalus tsataensis Ni et Li in Acta Phytotax. Sin. 17(2): 106 f. 5. 1979.

产西藏西部；生于山坡沙砾地上，海拔3100米。**模式标本**采自札达。

29. **疏花黄芪**

Astragalus hoffmeisteri (Klotz.) Ali in Kew Bull. 1958 (2): 304. 1958——*Phaca hoffmeisteri* Klotz. in Klotz. et Garck. Bot. Ergebn. Reis. Waldem. 159. 1862——*Astragalus adesmiaefolius* Benth. ex Bge. in Mem. Acad. Sci. St.-Petersb. VII. 11 (16): 4. 1868 et 15 (1): 2. 1869.

产西藏西部。克什米尔地区也有分布。**模式标本**采自西藏。

系2. **粗壮黄芪系** Ser. 2. **Robusti** (Pet.-Stib.) K. T. Fu, stat. nov.——Sect. *Robusti* Pet.-Stib. in Acta Hort. Gothob. 12: 60. 1937.

系的模式种：*Astragalus hoantchy* Franch.

本系有3种。

30. **魚鳞黄芪**

Astragalus hedinii Ulbr. in Bot. Jahrb. 35: 679. 1965.

产西藏西部札达；生于村边河滩地上，海拔3500米。

31. **边陲黄芪**

Astragalus dshimensis Gonch. in Not. Syst. Inst. Bot. Acad. Sci. URSS 10: 30. 1946.

产新疆西部；生于山谷林下、阶地或山坡岩石间，海拔1445—2450米。

模式标本采自苏联中亚。

32. **粗壮黄芪**

Astragalus hoantchy Franch. in Nouv. Arch. Mus, Hist. Nat. Paris 5 : 238. 1883.

产青海、甘肃、宁夏及内蒙古；生于山谷水旁、滩地或山坡路边，海拔1500—2200米。蒙古也有分布。**模式标本**采自蒙古。

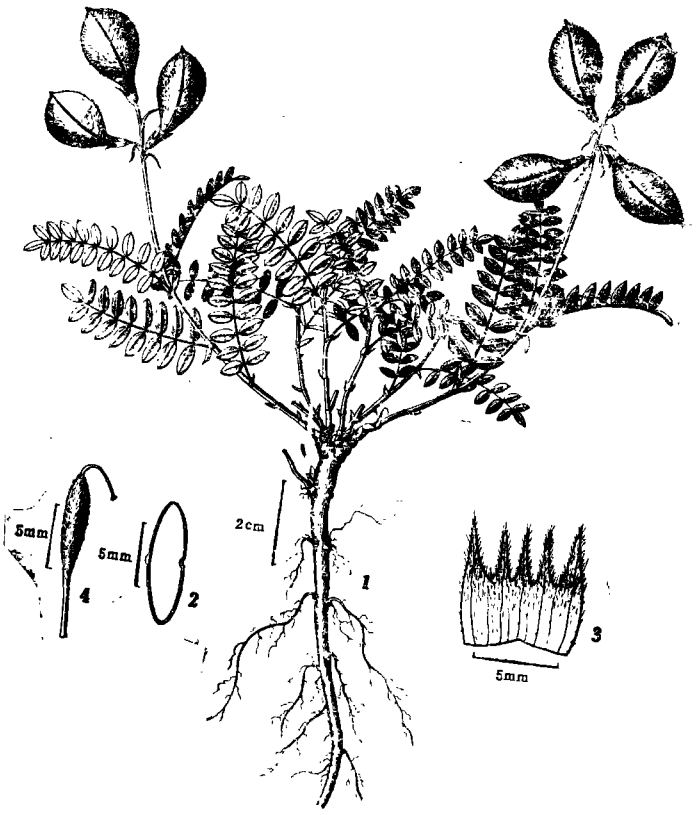

图1 囊果黄芪 A. saccatocarpus K. T. Fu

1. 果枝；2. 荚果横切面；3. 萼（展开）；4. 雌蕊。（李志民绘）

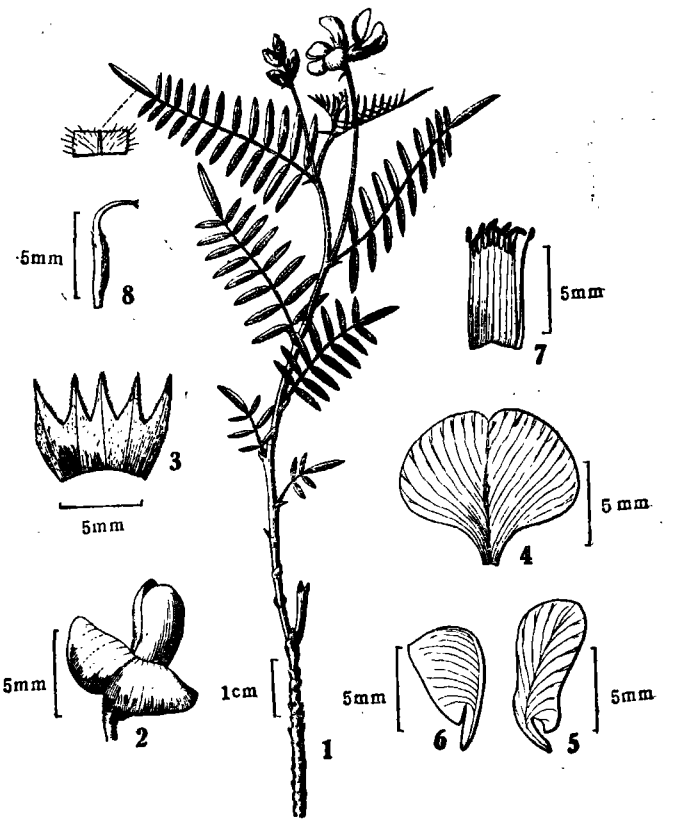

图2 奇异黄芪 A. prodigiosus K. T. Fu

1. 植株；2. 花；3. 萼（展开）；4. 旗瓣；5. 翼瓣；6. 龙骨瓣；7. 雄蕊；8. 雌蕊。（李志民绘）

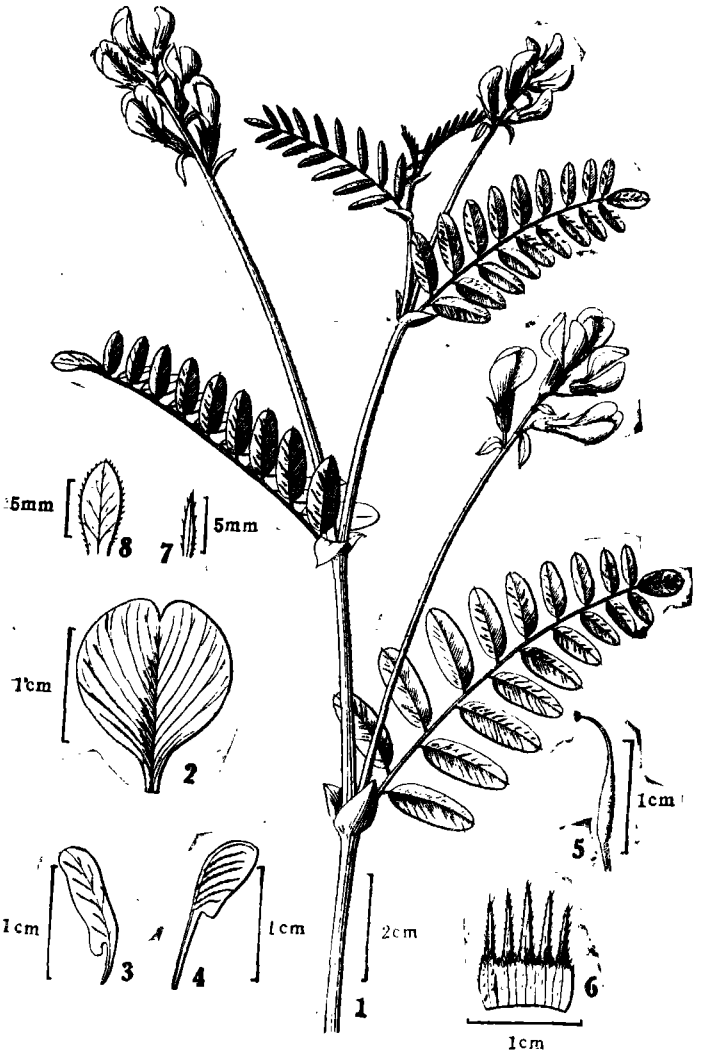

图3 黄绿黄芪 A. flavovirens K. T. Fu

1. 花枝；2. 旗瓣；3. 翼瓣；4. 龙骨瓣；5. 雌蕊；6. 萼（展开）；7. 小苞片；8. 苞片。

（李志民绘）

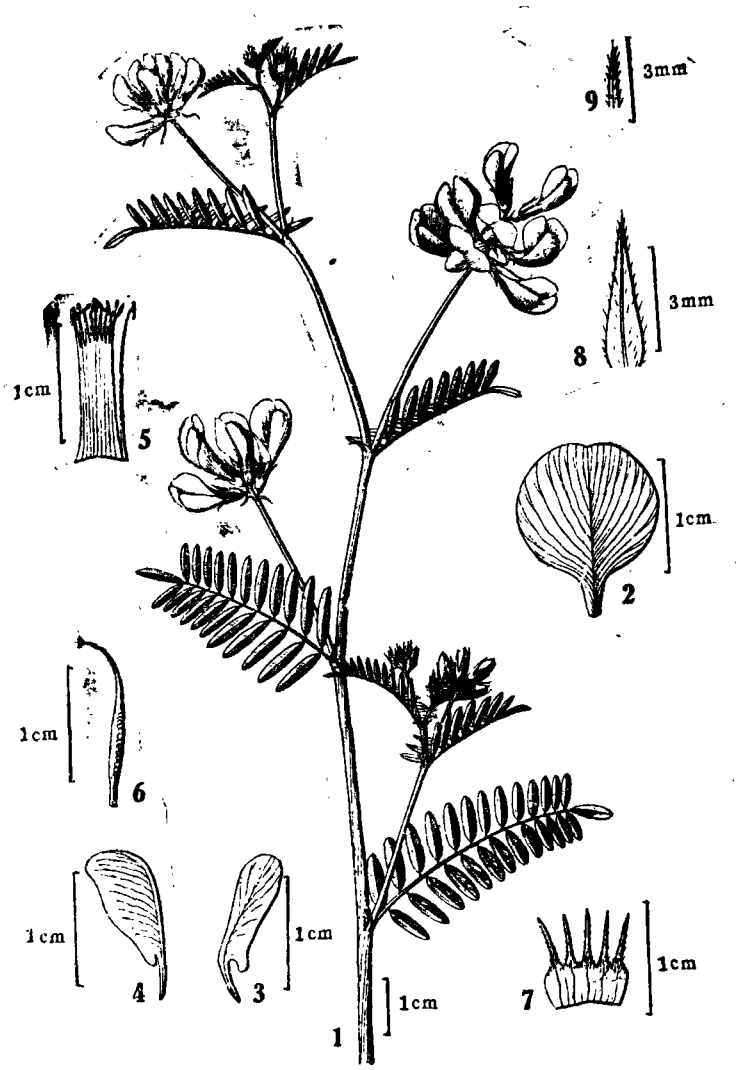

图4 細叶黄芪 A. angustifoliolatus K. T. Fu

1. 花枝；2. 旗瓣；3. 翼瓣；4. 龙骨瓣；5. 雄蕊；6. 雌蕊；7. 萼（展开）；8. 苞片；9. 小苞片。（李志民绘）

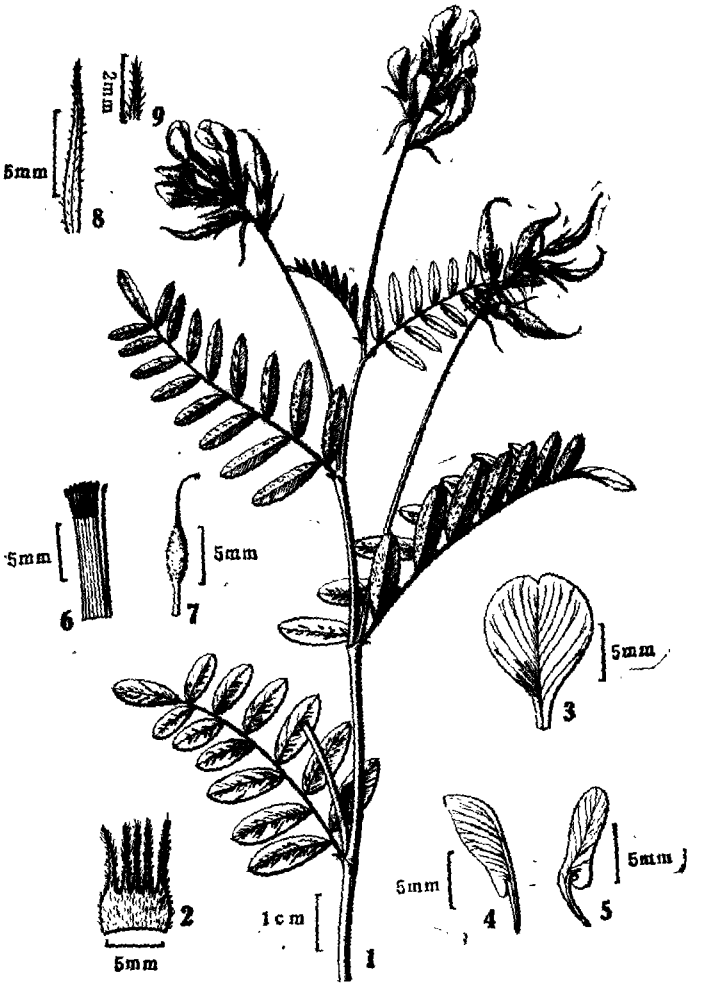

图5 黄白黄芪 A. albidoflavus K. T. Fu

1. 花枝；2. 萼（展开）；3. 旗瓣；4. 翼瓣；5. 龙骨瓣；6. 雄蕊；7. 雌蕊；8. 苞片；9. 小苞片。（李志民绘）

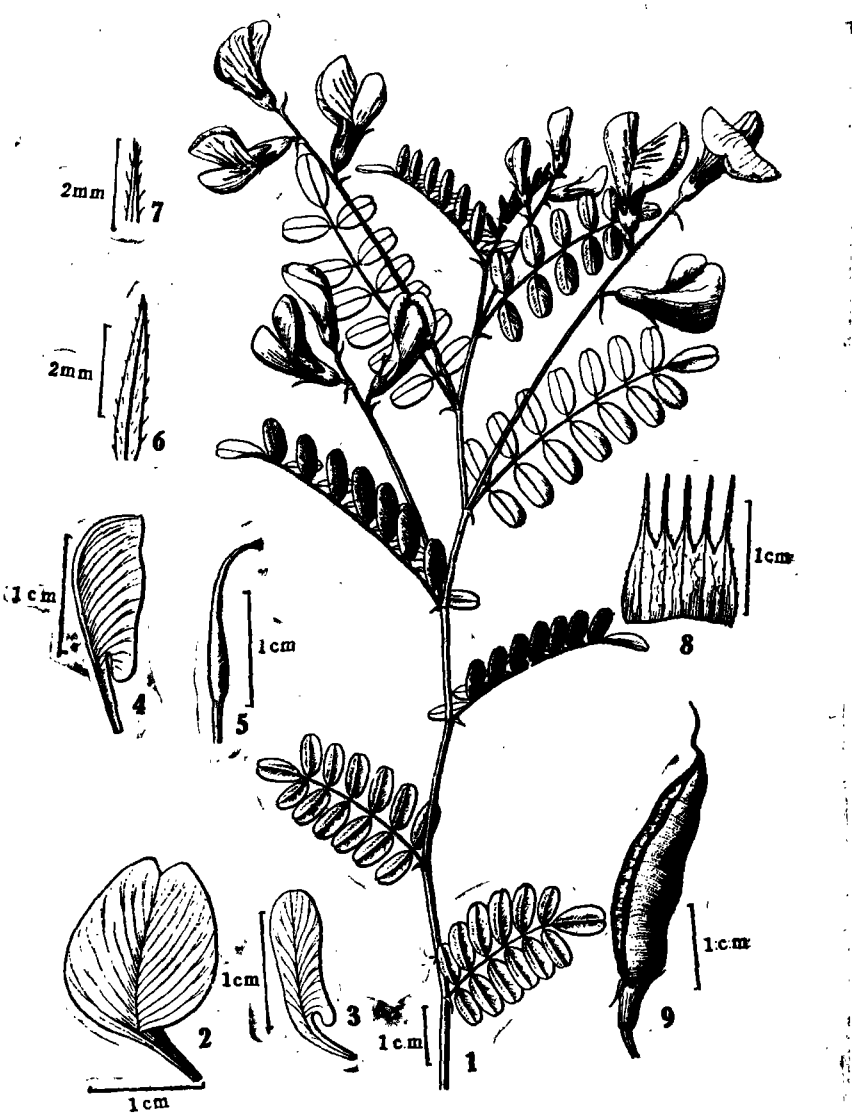

图6 膨果黄芪 A. turgidocarpus K. T. Fu

1. 花枝；2. 旗瓣；3. 翼瓣；4. 龙骨瓣；5. 雄蕊；6. 苞片；7. 小苞片；8. 萼（展开）；9. 荚果。（李志民绘）

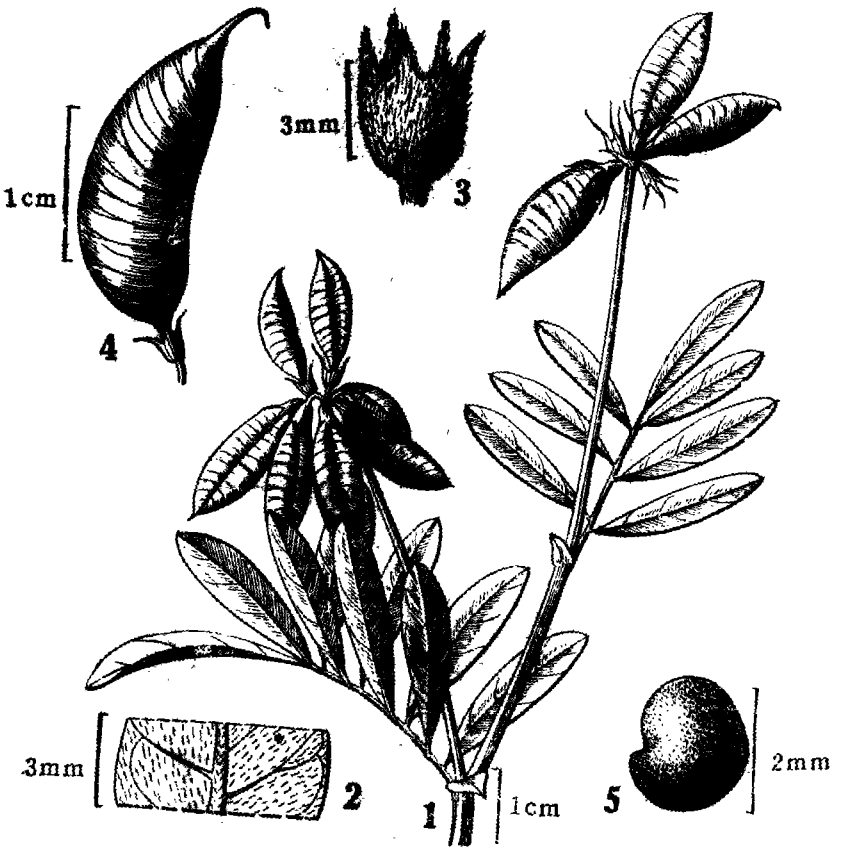

图7 德钦黄芪 A. tenchingensis S. S. Cheng

1. 果枝；2.小叶一部分（背面示毛）；3. 萼；4. 荚果；5. 种子。（李志民绘）

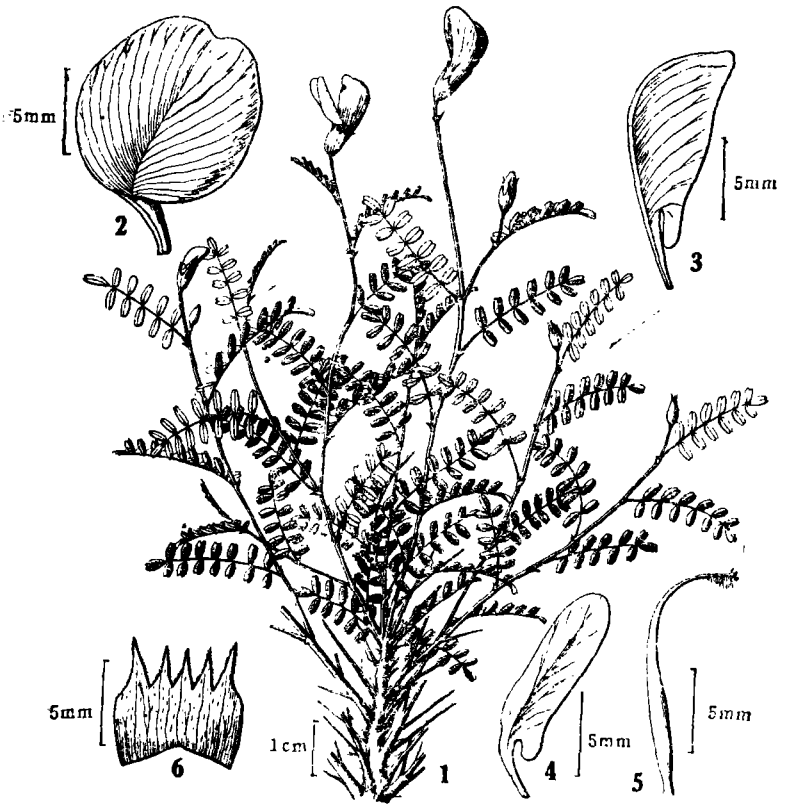

图8 单花黄芪 A. monanthus K. T. Fu

1. 花枝；2. 旗瓣；3. 翼瓣；4. 龙骨瓣；5. 雄蕊；6. 萼（展开）。（李志民绘）